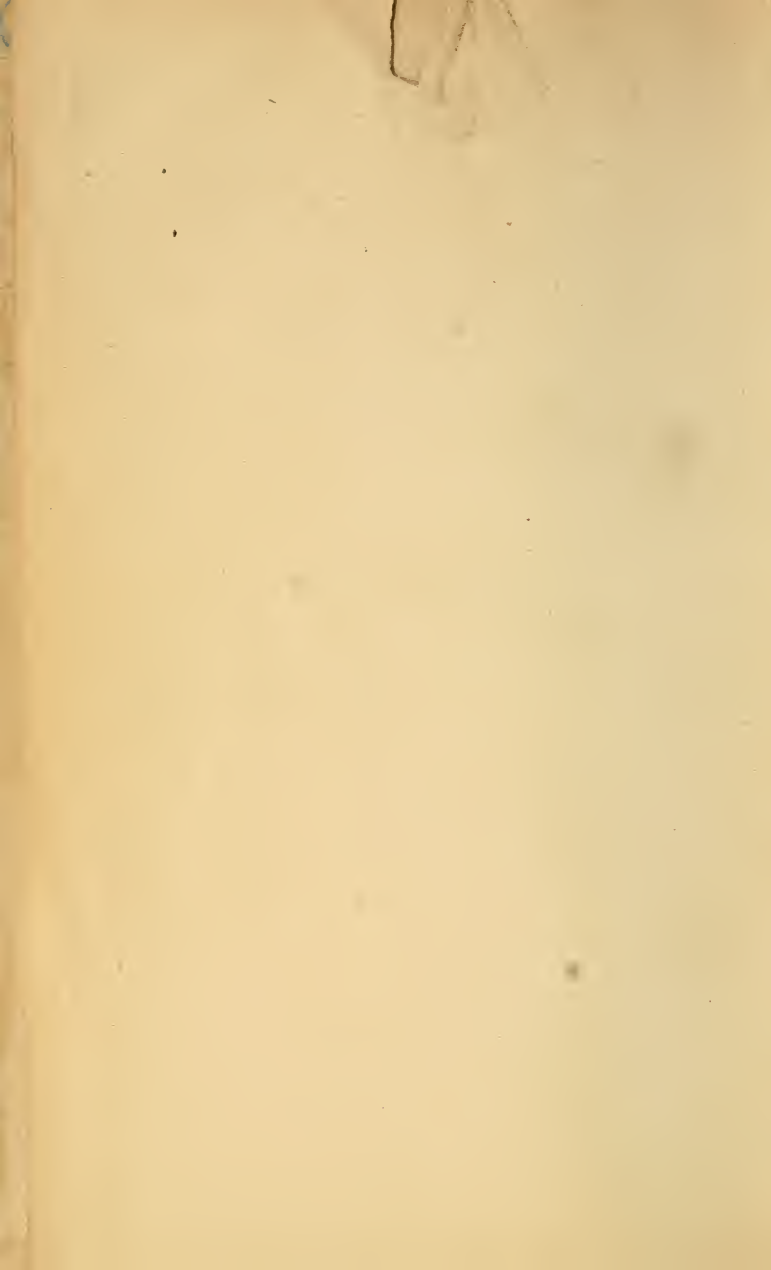


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NINETY-FIFTH

ANNUAL CATALOGUE

OF THE

MEDICAL SCHOOL

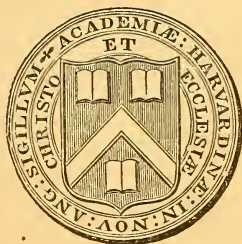
(BOSTON)

OF

HARVARD UNIVERSITY.

1877-78.

*[Reprinted from the Catalogue of the University.]*



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1877.




*Cambridge:*  
*Press of John Wilson and Son.*



# THE MEDICAL SCHOOL.

BOSTON.



INSTRUCTION in this School is given by lectures, recitations, clinical teaching, and practical exercises, uniformly distributed throughout the academic year. The year begins on the Thursday following the last Wednesday in September,\* and ends on the last Wednesday in June. There is a recess at Christmas, beginning December 23, and ending January 2; and a spring recess, beginning on the Wednesday before Fast Day, and ending on the following Tuesday.

The course of instruction has been greatly enlarged, so as to extend over three years, and has been so arranged as to carry the student progressively and systematically from one subject to another, in a just and natural order.

In the subjects of anatomy, histology, chemistry, and pathological anatomy, laboratory work is substituted for, or added to, the usual didactic lectures, and is as much required of every student as attendance at lectures and recitations.

Instead of the customary oral examination for the degree of Doctor of Medicine, held at the end of the three years' period of study, a series of written examinations on all the main subjects of medical instruction has been distributed for regular students through the whole three years. Every candidate for the degree must pass a satisfactory examination in every one of the principal departments of medical instruction, at some time during his period of study.

Members of any one department of Harvard University have a right to attend lectures and recitations in any other department, without paying additional fees. Students in the Medical School, who wish to avail themselves of this opportunity of pursuing scientific or other studies, may do so without loss of time counted as medical study, to such extent and in such manner as the Medical Faculty shall in each case prescribe. Undergraduates intending to study medicine are advised to pay special attention to the study of Natural History, Chemistry, Physics, and the French and German languages, while in College.

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\* That the time of study shall count as a full term, students must present themselves within the first week of the term.

**FACULTY.**

- CHARLES W. ELIOT, LL.D., *President.*  
 CALVIN ELLIS, M.D., *Dean, and Jackson Professor of Clinical Medicine.*  
 JOHN B. S. JACKSON, M.D., *Shattuck Professor of Morbid Anatomy,  
 and Curator of the Anatomical Museum.*  
 OLIVER W. HOLMES, M.D., *Parkman Professor of Anatomy.*  
 HENRY J. BIGELOW, M.D., *Professor of Surgery.*  
 JOHN E. TYLER, M.D., *Professor of Mental Diseases.*  
 FRANCIS MINOT, M.D., *Hersey Professor of the Theory and Practice of  
 Physic.*  
 JOHN P. REYNOLDS, M.D., *Professor of Obstetrics.*  
 HENRY W. WILLIAMS, M.D., *Professor of Ophthalmology.*  
 DAVID W. CHEEVER, M.D., *Professor of Clinical Surgery.*  
 JAMES C. WHITE, M.D., *Professor of Dermatology.*  
 ROBERT T. EDES, M.D., *Professor of Materia Medica.*  
 HENRY P. BOWDITCH, M.D., *Professor of Physiology.*  
 FREDERICK I. KNIGHT, M.D., *Instructor in Percussion, Auscultation,  
 and Laryngoscopy.*  
 CHARLES B. PORTER, M.D., *Demonstrator of Anatomy and Instructor  
 in Surgery.*  
 JOHN C. WARREN, M.D., *Instructor in Surgery.*  
 REGINALD H. FITZ, M.D., *Assistant Professor of Pathological Anatomy.*  
 WILLIAM L. RICHARDSON, M.D., *Instructor in Obstetrics.*  
 THOMAS DWIGHT, M.D., *Instructor in Histology.*  
 EDWARD S. WOOD, M.D., *Professor of Chemistry.*  
 HENRY H. A. BEACH, M.D., *Assistant Demonstrator of Anatomy.*  
 WILLIAM H. BAKER, M.D., *Instructor in Gynæcology.*  
 WILLIAM B. HILLS, M.D., *Instructor in Chemistry.*

**OTHER INSTRUCTORS.**

- GEORGE F. H. MARKOE, *Instructor in Materia Medica.*  
 FRANK W. DRAPER, M.D., *Lecturer on Hygiene.*  
 CHARLES F. FOLSOM, M.D., *Lecturer on Hygiene.*  
 HENRY P. QUINCY, M.D., *Assistant in Histology.*  
 EDWARD N. WHITTIER, M.D., *Assistant in Clinical Medicine.*  
 GEORGE M. GARLAND, M.D., *Assistant in Physiology.*

The following gentlemen will give special clinical instruction : —

- FRANCIS B. GREENOUGH, M.D., and EDWARD WIGGLES-  
 WORTH, M.D., *in Syphilis.*  
 JOHN O. GREEN, M.D., and C. J. BLAKE, M.D., *in Otology.*  
 CHARLES P. PUTNAM, M.D., and JOSEPH P. OLIVER, M.D.,  
*in Diseases of Children.*  
 SAMUEL G. WEBBER, M.D., and JAMES J. PUTNAM, M.D.,  
*in Diseases of the Nervous System.*

## STUDENTS.

## Course for Graduates.

Ellis, Edward Dyer, M.D.,	Fairhaven, Vt.
Farrar, Samuel Franklin, M.D. ( <i>Chicago Med. Coll.</i> ),	Boston.
• Green, Charles Montravelle, M.D.,	Boston.
Hall, John Dean, M.D., U.S.A.,	Boston.
Hodges, Edward Francis, M.D.,	Boston.
• Richardson, Maurice Howe, M.D.,	Boston.
• Gannett, William Whitworth, A.B.,	Cambridge.

## Third Class.

Abeles, Edward,	Leavenworth, Kans.
Ambrose, George Booth,	Cambridge.
Bacon, Jonas Edward, A.B.,	Woburn.
Bennett, Luther William,	Boston.
• Bowditch, Vincent Yardley, A.B.,	Boston.
Broughton, Henry White, A.B.,	Jamaica Plain.
Bullard, William Norton, A.B.,	Boston.
Burns, Robert,	Lancaster, N.H.
• Burrell, Herbert Leslie,	Boston.
Carvelle, Henry de Wolfe,	Boston.
Clement, George Colburn,	Boston.
Collins, George Lewis, PH.B. ( <i>Brown Univ.</i> ),	Providence, R.I.
Comey, Perley Pierce,	Worcester.
Donovan, Samuel Magner,	Boston.
Dunbar, Eugene Fillmore,	Boston.
Emerson, William Carroll, A.B.,	Haverhill.
Ferris, Edward Mortimer, A.B.,	Brookline.
Fessenden, George Russell, A.B.,	Beaver Falls, Pa.
Field, Charles Elmer, A.B. ( <i>Brown Univ.</i> ),	Brockton.
Flanders, Frank Byron, A.B.,	Lawrence.
Fuller, Frank Boutelle, A.B. ( <i>Bates Coll.</i> ),	Wilton, Me.
Gregg, John Argeloe,	Somerville.
Haddock, Charles Whitney,	Beverly.
Ham, Otis French,	Belmont.
Hayward, George Griswold,	Milton.
Hicks, Herbert Dexter,	Arlington.
Holmes, Walter Hamlin, A.B. ( <i>Bowd. Coll.</i> ),	Calais, Me.
Hun, Henry, PH.B. ( <i>Sheffield Scientific School</i> ),	Albany, N.Y.
Johnson, William Louis,	Cambridge.
Keene, George Frederick, A.B. ( <i>Brown Univ.</i> ),	Providence, R.I.
McCarty, James Joseph,	Lowell.
Meador, Charles Eugene,	Cambridge.

Mixer, Samuel Jason, S.B. ( <i>Mass. Inst. Tech.</i> ),	<i>Boston.</i>
Peavey, George Arthur,	<i>Moultonboro', N.H.</i>
Phipps, Walter Andrus,	<i>Hopkinton.</i>
Plimpton, Lewis Henry, A.B.,	<i>Walpole.</i>
Prince, Morton Henry, A.B.,	<i>Boston.</i>
Rollins, William Hubert, D.M.D.,	<i>Brookline.</i>
Sawyer, William Brewster, A.B. ( <i>Amherst Coll.</i> ),	<i>Easthampton.</i>
Seymour, William Wotkyns, A.B. ( <i>Yale Coll.</i> ),	<i>Troy, N.Y.</i>
Smith, Jonathan Jason,	<i>Somerville.</i>
Stockwell, Charles Bliss, A.B. ( <i>Olivet Coll.</i> ),	<i>Port Huron, Mich.</i>
Viles, Clarence Albertus,	<i>Lowell.</i>
Watson, Francis Sedgwick, A.B.,	<i>Milton.</i>
West, George Webb, A.B.,	<i>Salem.</i>
Wheeler, John Brooks, A.B. ( <i>Univ. of Vt.</i> ),	<i>Burlington, Vt.</i>
Williams, Harold, A.B.,	<i>Brookline.</i>
Wyman, Samuel Edwin, A.B.,	<i>Arlington.</i>

#### Second Class.

Abbott, Charles Edward,	<i>Andover.</i>
Allen, Dudley Peter, A.B. ( <i>Oberlin Coll.</i> ),	<i>Oberlin, O.</i>
Bathey, Henry Halsey,	<i>Rome, Ga.</i>
Bean, Charles Edwin,	<i>Chelsea.</i>
Bowers, Walter Prentice,	<i>Clinton.</i>
Broyer, Constant,	<i>Melbourne, Australia.</i>
Bullard, James Hovey, A.B.,	<i>Holliston.</i>
Clarke, Samuel Bartlett,	<i>Salem.</i>
Cleaves, James Edwin, A.B.,	<i>Medford.</i>
Davis, William, A.B.,	<i>Plymouth.</i>
Dixon, Robert Brewer,	<i>Damariscotta, Me.</i>
Drew, Frank Haynes,	<i>Boston.</i>
Durell, Thomas Moulton,	<i>Somerville.</i>
Eaton, Wyllis Gilbert, A.B. ( <i>Dart. Coll.</i> ),	<i>Lowell.</i>
Ernst, Harold Clarence, A.B.,	<i>Boston.</i>
Faden, Andrew Clarence,	<i>Boston.</i>
Fuller, Fred, A.B. ( <i>Colby Univ.</i> ),	<i>Boston.</i>
Gardner, Guy Hubbard,	<i>Winchester.</i>
Grandin, Egbert Henry, A.B.,	<i>New York, N.Y.</i>
Hall, David Graham,	<i>Boston.</i>
Harmon, Samuel Tappan,	<i>Boston.</i>
Hartley, Richard Cook Borden,	<i>Fall River.</i>
Hill, Charles Edwin, A.B. ( <i>Yale Coll.</i> ),	<i>E. Killingly, Conn.</i>
Hinds, Francis Edward,	<i>Boston.</i>
Holbrook, William Edward, A.B. ( <i>Amherst Coll.</i> ),	<i>Palmer.</i>
Hooker, Charles Parker,	<i>Springfield.</i>
Jaques, Henry Percy, A.B.,	<i>Boston.</i>

Johnson, Frederick William, A.B. ( <i>Amherst Coll.</i> ),	<i>Boston.</i>
Keating, James Edward,	<i>Milford.</i>
Kibbey, William Beckford,	<i>Washington, D.C.</i>
Kyle, Flavill Winslow,	<i>Boston.</i>
Larrabee, Walter Willis,	<i>Boston.</i>
Lombard, Frederic Howard, A.B.,	<i>Boston.</i>
Mallett, Charles Howard,	<i>Bath, Me.</i>
Monks, George Howard, A.B.,	<i>Boston.</i>
Mullen, Francis Henry,	<i>Boston.</i>
Noyes, Ernest Henry, A.B. ( <i>Bowd. Coll.</i> ),	<i>Newburyport.</i>
Otis, Walter Joseph,	<i>Chicago, Ill.</i>
Parsons, Azariah Worthington,	<i>Somerville.</i>
Peckham, Cyrus Tracy, A.B.,	<i>Ledyard, Conn.</i>
Price, Russel Clarence,	<i>Waukegan, Ill.</i>
Randall, James Munroe,	<i>Woburn.</i>
Rix, Frank Reader, A.B.,	<i>Lowell.</i>
Robbins, Elliot Daniel,	<i>Springfield.</i>
Rogers, Gorham Davis,	<i>Newbury.</i>
Ruddock, Edward Josiah, A.B. ( <i>Amherst Coll.</i> ),	<i>Greenfield.</i>
Sampson, Frederic Albert,	<i>Lawrence.</i>
Scoboria, Charles Quantic,	<i>N. Somerville</i>
Scully, Francis Patrick,	<i>Medford.</i>
Simmons, William Turner,	<i>Boston.</i>
Smith, George Edward,	<i>Zanesville, O.</i>
Sprague, William Lawrence, A.B.,	<i>Boston.</i>
Spring, Willis Parsons, A.B. ( <i>Oberlin Coll.</i> ),	<i>Redwing, Minn.</i>
Standish, Myles, A.B. ( <i>Bowd. Coll.</i> ),	<i>Cambridge.</i>
Stetson, Edwin Flye,	<i>Damariscotta, Me</i>
Strong, Charles Pratt, A.B.,	<i>E. Bridgewater.</i>
Swarts, Gardner Taber,	<i>Providence, R. I.</i>
Terry, Herbert, S.B. ( <i>Cornell Univ.</i> ),	<i>Fairhaven.</i>
Wade, Edric Allan,	<i>Lawrence.</i>
Walton, George Lincoln, A.B.,	<i>Westfield.</i>
Warren, Franklin Cooley,	<i>Boston.</i>
Warren, Lewis Jonathan, A.B. ( <i>Yale Coll.</i> ),	<i>Killingly, Conn.</i>
Weld, Charles Goddard,	<i>Boston.</i>
Whitcombe, Charles Reed, A.B. ( <i>Williams Coll.</i> ),	<i>Cambridge.</i>
Wolcott, Willard,	<i>Hartford, Conn.</i>
Woodman, Walter, A.B.,	<i>Cambridge.</i>
Young, John Francis,	<i>Boston.</i>

**First Class.**

Adams, George Edwin,  
Baker, John Walter,

*Lowell.*  
*Chelsea.*

Bigelow, Enos Hoyt, B.S. ( <i>Worcester Free Institute</i> ),	<i>Framingham.</i>
Bigelow, Samuel Lee,	<i>Worcester.</i>
Bill, George Edwin, A.B. ( <i>Tufts Coll.</i> ),	<i>Waltham.</i>
Blanchard, Benjamin Seaver,	<i>Boston.</i>
Bradford, Carey Carpenter, A.B. ( <i>Brown Univ.</i> ),	<i>W. Woodstock, Conn.</i>
Briard, William Henry Lighthill,	<i>Cambridge.</i>
Brown, Daniel Rollins, A.B. ( <i>Tufts Coll.</i> ),	<i>Salem.</i>
Brown, William Francis, A.B. ( <i>Boston Coll.</i> ),	<i>Boston.</i>
Burr, Buchanan,	<i>Astoria, N.Y.</i>
Caldwell, Samuel Leonard, A.B. ( <i>Brown Univ.</i> ),	<i>Newton.</i>
Call, Charles Henry,	<i>Lowell.</i>
Carter, George Joseph,	<i>Boston.</i>
Cates, Abraham Barker, A.M. ( <i>Colby Univ.</i> ),	<i>Vassalboro', Me.</i>
Coggeshall, Henry Tisdale,	<i>Newport, R.I.</i>
Cunningham, William Frost,	<i>Charlestown.</i>
Currier, Charles Gilman, A.B.,	<i>Boston.</i>
Curtis, Lucius Jamieson,	<i>E. Bridgewater.</i>
Cushing, Hayward Warren, A.B.,	<i>Boston.</i>
Cutter, Edward Jones, A.B.,	<i>Nashua, N.H.</i>
Dewey, Charles Ayrault, A.B. ( <i>Univ. of Rochester</i> ),	<i>Rochester, N.Y.</i>
Doggett, Frederic Fobes, A.B.,	<i>Quincy.</i>
Donovan, Benedict,	<i>Boston.</i>
Dow, George William, A.B. ( <i>Brown Univ.</i> ),	<i>Lawrence.</i>
Dyer, Willard Knowlton,	<i>Boston.</i>
Egan, John James,	<i>Boston.</i>
Elliot, Edward Pearson, A.B.,	<i>Somerville.</i>
Ellis, Fred Warren,	<i>Monson.</i>
Faulkner, Harry Winthrop,	<i>Billerica.</i>
Fisk, Samuel Augustus, A.B. ( <i>Yale Coll.</i> ),	<i>Northampton.</i>
Gildee, James Bennett,	<i>Lowell.</i>
Grout, Charles Henry,	<i>Worcester.</i>
Hall, Newbert Jackson,	<i>Boston.</i>
Hammond, Charles Bartlett, A.B. ( <i>Dart. Coll.</i> ),	<i>Nashua, N.H.</i>
Harrington, Frank Bishop, A.B. ( <i>Tufts Coll.</i> ),	<i>Salem.</i>
Hodges, William Donnison,	<i>Boston.</i>
Jackson, William Benjamin,	<i>Lowell.</i>
Jarvis, William Furness,	<i>Boston.</i>
Jefferson, Herbert Perry,	<i>Lowell.</i>
Keating, Thomas Francis, A.B. ( <i>Holy Cross Coll.</i> ),	<i>Portland, Me.</i>
Kingman, Rufus Anderson,	<i>Boston.</i>
Kittredge, Joseph, Jr.,	<i>N. Andover.</i>
Litchfield, William Harvey,	<i>Hull.</i>
Lobsitz, Leopold,	<i>Springfield</i>
Lowe, Abraham Thompson, Jr., A.B. ( <i>Boston Univ.</i> ),	<i>Boston</i>



Manton, Walter Porter,	<i>Boston.</i>
McDonough, Thomas Patrick,	<i>Milford.</i>
Millet, Charles Sumner,	<i>E. Bridgewater.</i>
Morton, Nathaniel Bowditch,	<i>Boston.</i>
Mudge, Henry Sanford, A.B.,	<i>Boston.</i>
Noble, Arthur Green,	<i>Boston.</i>
Noonan, Michael Charles,	<i>Lowell.</i>
Osman, Charles Franklin,	<i>Boston.</i>
Penteado, José Bonifacio Leite,	<i>San Paulo, Brazil.</i>
Perry, Eben Greely,	<i>Boston.</i>
Pierce, Matthew Vassar, A.B.,	<i>Boston.</i>
Pomroy, Herbert Jason,	<i>Providence, R.I.</i>
Russell, Eben George,	<i>E. Deering, Me.</i>
Ryder, Godfrey, Jr., A.B.,	<i>Medford.</i>
Sherman, Thomas Foster, A.B.,	<i>Boston.</i>
Shurtleff, Howard Livingstone,	<i>Boston.</i>
Simmons, Moyses Rogers,	<i>Hanover.</i>
Smith, John Joseph, A.B. ( <i>Holy Cross Coll.</i> ),	<i>Somerville.</i>
Squires, Harry Sanford,	<i>Troy, N.Y.</i>
Stanton, Jere Edmund,	<i>Boston.</i>
Stevens, John Cornell,	<i>New York, N.Y.</i>
Stickney, George Augustus,	<i>Haverhill.</i>
Strong, Norton, A.B. ( <i>Racine Coll.</i> ),	<i>Detroit, Mich.</i>
Swift, William Nye, A.B.,	<i>New Bedford.</i>
Temple, William Franklin, A.B. ( <i>Dart. Coll.</i> ),	<i>Boston.</i>
Terrell, Frederick, A.B. ( <i>Ind. Asbury Univ.</i> ),	<i>San Antonio, Texas.</i>
Titcomb, George Eugene,	<i>Exeter, N.H.</i>
Tower, Charles Bates,	<i>Cambridge.</i>
Twitchell, George Pierce,	<i>Keene, N.H.</i>
Underhill, Caleb Brooks,	<i>Somerville.</i>
Wakefield, Alley Talbot, A.B.,	<i>Cambridge.</i>
Walker, James Wise,	<i>Boston.</i>
Warren, Edward Winslow, A.B.,	<i>Boston.</i>
West, Edward Graeff, A.B.,	<i>Exeter, N.H.</i>
Weston, Charles Galen,	<i>Revere.</i>
White, Charles Warren, Jr.,	<i>Boston.</i>
White, Herbert Warren,	<i>Randolph.</i>
Whitman, Royal,	<i>Boston.</i>
Whitney, Herbert Baker, A.B.,	<i>Leominster.</i>
Wiggin, Henry Dwight, A.B. ( <i>Bowd. Coll.</i> ),	<i>Auburn, Me.</i>
Wilson, John Harpin,	<i>Dubuque, Iowa.</i>
Witherlee, Charles Bryant, A.B.,	<i>Castine, Me.</i>
Withington, Charles Francis, A.B.,	<i>Boston.</i>
Young, Charles William Fenelon,	<i>Cambridge.</i>

# THE MEDICAL SCHOOL.

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## REQUISITES FOR ADMISSION.

All candidates for admission, excepting those who have passed an examination for admission to Harvard College, must present a degree in Letters or Science from a recognized college or scientific school, or pass an examination, in June or September, in the following subjects: —

1. **LATIN.** The translation of easy Latin prose. French or German will be accepted, however, as a substitute for Latin.

2. **PHYSICS.** Candidates will be required to show such a knowledge of this subject as may be obtained from Balfour Stewart's elementary works on Physics.

The examinations will be conducted in writing; and, in judging the work of the candidate, the spelling, grammar, and construction will be considered.

Graduates in medicine will not be required to pass this examination on joining the school.

## DIVISION OF STUDIES.

*First year.* — Anatomy, Physiology, and General Chemistry.\*

*Second year.* — Medical Chemistry, Materia Medica, Pathological Anatomy, Clinical Medicine, and Clinical Surgery.

*Third year.* — Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

## COURSE OF INSTRUCTION.

The following methods of instruction are adopted in the several departments: —

*Anatomy.* — Lectures; various practical exercises, including abundant dissection under the direction of the Demonstrator; recitations from text-books; histology.

*Physiology.* — Lectures, recitations, and practical demonstrations in the

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\* Any student who shall have previously passed in the Undergraduate Department or Scientific School of Harvard University an examination in General Chemistry (including qualitative analysis) will be exempt from examination in this branch, and may pursue the study of Medical Chemistry during his first year.



laboratory. To students of the second and third classes, opportunities are given for original investigations in the laboratory.

*Chemistry* is taught mainly by practical work in the laboratory, the student having his own desk and apparatus. General Chemistry and qualitative analysis are taught during the first year. Beside the laboratory work, there is a lecture and a recitation every week. In the second year, medical chemistry is taught by lectures and laboratory work.

*Pathological Anatomy* is taught by lectures, recitations, and practical instruction in pathological histology. The collection of the Warren Anatomical Museum is used to illustrate the lectures; and many morbid specimens are shown in a fresh state. Students also receive practical instruction in the method of making autopsies, and are admitted to those made at both hospitals. Special classes in pathological histology, including the diagnosis of tumors, are formed for those who are provided with a microscope. Such students are required to prepare the various objects. The school possesses a number of microscopes for the use of those students whose means will not permit the purchase of an instrument.

*Materia Medica and Therapeutics.*—*Materia Medica* is taught by lectures and practical demonstrations. *Therapeutics*, or the physiological action of drugs and their application to disease, is taught in the third year by lectures, recitations, and hospital exercises.

*The Theory and Practice of Medicine.*—Lectures, recitations, and hospital visits.

*Clinical Medicine.*—Daily instruction is given in this department by hospital visits and other exercises. Students are furnished with cases for personal examination, and are called upon to report them before the class, where they are criticised. These examinations are held both in the wards and in the amphitheatre. Another exercise, known as the "Clinical Conference," affords an opportunity for more thorough preparation of cases, more time being allowed for their study. The full written report of a case is read by the student who has examined it. It is afterwards criticised by the class, by the Professor of Clinical Medicine, and other teachers in the school. In addition to this, a regular course of supplementary instruction is given in Auscultation and Percussion, and in Laryngoscopy, which affords students an abundant opportunity for acquiring a thoroughly practical knowledge of these methods of exploration.

*Surgery.*—Lectures and recitations. There are also courses on Surgical Anatomy, Minor Surgery, Surgical Histology, Bandaging, and Operative Surgery. In the latter, students of the third class are supplied with material for repeating the usual surgical operations.

Instruction in Clinical Surgery is given at the Massachusetts General Hospital and City Hospital throughout the year, as follows:—

FIRST HALF-YEAR. — Clinical Lectures on cases, per week, 2; Surgical

Visits in the hospital wards, per week, 3; public operating days, per week, 2. Total number of exercises per week, 7.

SECOND HALF-YEAR. — Clinical Lectures on cases, per week, 1; Surgical Visits in the hospital wards, per week, 3; public operating days, per week, 3. Total number of exercises per week, 7.

The Professor of Clinical Surgery holds an exercise twice a week, in winter, at the City Hospital.

Clinical Surgery is there taught, in two ways: 1st, by bedside examinations of the students in the hospital wards; 2d, by a surgical conference, at which the advanced students make a full report of a surgical case in writing, which is then criticised by their fellow-students, and by the Professor. The case is completed, whenever practicable, by an exhibition of, or operation on, the patient, — on the spot.

*Obstetrics.* — Lectures and recitations. Students are instructed in the usual operations on the manikin, and will have opportunities to take charge of cases of midwifery in their third year. A course of operative obstetrics, with practical illustrations on the cadaver, is given.

*Diseases of Women and Children.* — Lectures and Clinical Instruction.

*Mental Diseases.* — Lectures.

*Ophthalmology.* — A complete course is delivered upon the diseases of the eye, including clinical instruction and the use of the ophthalmoscope.

*Dermatology* is taught by lectures and clinical illustrations. The large number of out-patients at the Massachusetts General Hospital furnishes ample opportunities for illustration.

*Syphilis.* — Recitations and clinical instruction.

*Otology.* — Lectures and clinical instruction.

*Laryngoscopy, Auscultation, and Percussion.* — Lectures and Demonstrations.

*Diseases of the Nervous System.* — Lectures and Demonstrations.

*Hygiene.* — Lectures.

### TEXT-BOOKS.

The following works are recommended as text-books and for collateral reading: —

#### *Text-Books.*

#### *Collateral Reading.*

#### ANATOMY.

Gray, Wilson, Leidy.

Hodges's Practical Dissections.

Holden's Manual.

Quain (edition of 1867).

Holden's Osteology.

Stricker's Manual of Histology.

Frey's Microscopic Technology.

Tyson's Cell Doctrine.

## PHYSIOLOGY.

- |  |   |
|--|---|
| Dalton's Human Physiology.                 | Pavy on Food and Dietetics.                             |
| Foster's Text-book of Physiology.          | Fick, Compendium der Physiologie.                       |
| Huxley's Elementary Lessons in Physiology. | Fick, Medicinische Physik.                              |
|  | Sanderson's Hand-book for the Physiological Laboratory. |
|  | Flint's Physiology of Man.                              |
|  | Carpenter's Principles of Human Physiology.             |

## GENERAL CHEMISTRY.

- |  |                                 |
|--|---------------------------------|
| Thorpe's Manual of Inorganic Chemistry.                                      | Miller's Elements of Chemistry. |
| Clowe's Elementary Treatise on Practical and Qualitative Inorganic Analysis. |                                 |

## MEDICAL CHEMISTRY.

- |  |  |
|--|--|
| Tyson's guide to the Practical examination of the Urine. | Ralfe, Outlines of Physiological Chemistry.                    |
| Reese's Manual of Toxicology.                            | Gorup-Besanez, Physiologische Chemie.                          |
|  | Neubauer und Vogel, Analyse des Harns.                         |
|  | Taylor on Poisons.   |
|  | Tardieu, Étude médico-légale et clinique sur l'Empoisonnement. |

## MATERIA MEDICA.

- |                             |                             |
|-----------------------------|-----------------------------|
| Parrish's Pharmacy.         | United States Dispensatory. |
| United States Pharmacopœia. |                             |

## PATHOLOGICAL ANATOMY.

- |  |   |
|--|---|
| Wagner's Manual of General Pathology.                | Virchow's Cellular Pathology.                                 |
| Wilks's Pathological Anatomy (Moxon's edition).      | Rindfleisch's Pathological Histology.                         |
| Orth's Compend of Diagnosis in Pathological Anatomy. | Jones and Sieveking's Pathological Anatomy (Payne's edition). |

## THERAPEUTICS.

H. C. Wood's Therapeutics.	Ringer's Therapeutics.
Stillé's Therapeutics and Materia Medica.	Nothnagel, Arzneimittellehre.

## OBSTETRICS.

Playfair's System of Midwifery.	Cazeaux's Midwifery.
	Leishman's System of Midwifery.
	Schroeder's Manual of Midwifery.

## THEORY AND PRACTICE.

Flint's Practice of Medicine.	Robert's Hand-book of Theory and Practice of Medicine.
	Niemeyer's Text-book of Practical Medicine.
	Jaccond, <i>Traité de Pathologie Interne.</i>
	Bennett's Clinical Lectures on the Principles and Practice of Medicine.
	Sturges's Introduction to the Study of Clinical Medicine.

## SURGERY.

Bryant's Practice of Surgery.	Heath's Minor Surgery and Bandaging.
Billroth's Surgical Pathology.	Bellamy on Surgical Anatomy.
	Guérin, <i>Éléments de Chirurgie Opératoire.</i>
	Holme's System of Surgery.
	Cooper's Surgical Dictionary (1872).

The tabular views on the following pages will illustrate the distribution of studies throughout the year : —

## FIRST HALF-YEAR, 1877-78.

## FIRST YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.
10	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Chemistry. R.	Physiology. R.
11	Physiology. L.	Physiology. L.	Chemistry. L.	Laboratory.	Physiology. L.	
12	Histology.	Laboratory.	Laboratory.	Histology.	Laboratory.	Museum.
1	Last 11 w'ks, Anatomy. L.	Anatomy, L.	Anatomy, L. or R.	Anatomy, L.	Anatomy, R.	
5	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	Prac. Anat. after Jan. 1.	

## SECOND YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Visit.	B. C. H. Med. Visit. Bost. Disp.	Clinical Medicine. L.	M. G. H. Med. Visit.	Bost. Disp.	
10	Path. Anat. L. Aus. & Per.	Clin. Surg. L., after Dec. 1 Aus & Per.	Aus. & Per.	Aus. & Per.	B. C. H. Surg. Visit. Aus. & Per.	M. G. H. Surg. Visit. Aus. & Per.
11	Clin. Surg. L.			Chemistry, L.	B. C. H. Op.	M. G. H. Op.
12				Mat. Med.	Chemistry, R.	Museum.
3	Path. Hist.	Path. Anat. R.	Path. Anat. L.	Path. Hist.	Path. Anat. R.	
4		Surgery, R.			Clin. Conf.	
5	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	Prac. Anat. till Jan. 1.	

## THIRD YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Visit. Eye and Ear Infirmary.	B. C. H. Med. Visit. Bost. Disp.	Clinical Medicine. L.	M. G. H. Med. Vis. Eye and Ear Infirmary.	B. C. H. Ophthal and Otology. Bost. Disp.	Diseases of Nervous Sys.
10	Theo. and Prac. L.	Clin. Surg. L. after Dec. 1.	Dermatol. Clinical.	Theo. and Prac. L.	B. C. H. Surg. Visit.	M. G. H. Surg. Visit. Diseases of Children.
11	Clin. Surg. L.	Diseases of Nerv. Sys.	Surgery. L.	Surgery. L.	B. C. H. Op Diseases of Children.	M. G. H. Op.
12		Till Dec. Surgery, L. In Jan. Hygiene, L.		Obstetrics. R.	Venereal Diseases.	Museum.
2	Gynæcology.		Gynæcology.			
3	Obstetrics. L.	Theo. and Prac. R.	Obstetrics, L.	Ophthal.	Theo. and Prac. R.	
4	Therap. L.	Dermatol. L.	Therap. R.	Therap. L.	Clin. Conf.	

## SECOND HALF-YEAR, 1877.

## FIRST YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.
10	Laboratory.	Embryology, in May.	Laboratory.	Laboratory.	Chemistry. R.	Physiology. R.
11	Chemistry. L.	Physiology. Conf.	Physiology. L.	Embryology, in May.	Physiology. L.	
1	Anatomy. L. till May.	Anat. L. or R. till May.	Laboratory.	Anatomy. L. till May.	Anatomy. R. till May.	Museum.
3	Laboratory.	Laboratory.	Laboratory.	Laboratory.	Laboratory.	
5	Prac. Anat. till May.	Prac. Anat. till May.	Prac. Anat. till May.	Prac. Anat. till May.	Prac. Anat. till May.	



## SECOND YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Visits.	B. C. H. Med. Visit. Bost. Disp.		M. G. H. Med. Visit.	B. C. H. Bost. Disp.	Clin. Med.
10	Clin. Med. Aus. & Per.	B. C. H. Clin. Surg. till April 1. After Ap 1, Med. Visit. Aus. & Per.	M. G. H. Surg. Vis. Aus. & Per.	Aus. & Per.	B. C. H. Surg. Visit. Aus. & Per.	M. G. H. Surg. Visit. Aus. & Per.
11	Path. Anat. L.		M. G. H. Op. Reg. Anat. after Ap. 1.	Materia Medica.	B. C. H. Op.	M. G. H. Op
12	Surg. Conf. till April 1. Regional Anat. after April 1.	Chemistry. L.	Chemistry. R.	M. G. H. Surg. Con.		Museum.
3	Path. Hist.	Path Anat. R.	Path. Anat. L.	Path. Hist.	Path. Anat. R.	
4		Surgery R.	Clin. Conf.			

## THIRD YEAR.

Hour.	Monday.	Tuesday.	Wednesday.	Thursday.	Friday.	Saturday.
9	M. G. H. Med. Visit. Eye and Ear Infirmary.	B. C. H. Med. Visit. Bost. Disp.	Dermatol. Clinical.	M. G. H. Med. Vis.	B. C. H. Ophthal. Clin. Otol. Eye and Ear Infirmary.	Clin. Med.
10	Clin. Med.	B. C. H. Clin. Surg. till April 1. After Ap. 1, Med. Vis.	M. G. H. Surg. Vis.	Ophthal.	B. C. H. Surg. Visit. Bost. Disp.	M. G. H. Surg. Visit. Dis. of Children.
11	Theo. and Prac. L.		M. G. H. Op.	Theo. and Prac. L.	B. C. H. Op. Dis. of Child. till April.	M. G. H. Op.
12	Surg. Conf. till April 1.	Diseases of Nervous Sys.	Hygiene after Ap. 15.	Ment. Dis till May.		Museum.
3	Obstetrics. R.	Theo. and Prac. R.	Obstetrics L.	B. C. H. Med. Visit after April 15.	Theo. and Prac. R.	
4	Therap. L.	Dermatology	Clin. Conf.	Therap. R.	Therap. L.	Venereal Diseases, after Ap. 15.

## CLINICAL ADVANTAGES.

The Medical department of the University is established in Boston, in order to secure those advantages for Clinical Instruction and for the study of Practical Anatomy which are found only in large cities.

There are Hospital visits or operations daily.

*The Massachusetts General Hospital.*—During the past year 2,096 patients were treated in the wards, and 17,292 in the out-patient departments. Patients are received from all parts of the United States and the Provinces, and are visited by the students with the attending physicians and surgeons. The opportunities for becoming acquainted with general surgery are very great. Operations are numerous, and are performed in the amphitheatre, which is provided with seats for 400 persons. Clinics in the following special branches have been established in connection with the out-patient department: Dermatology, Laryngoscopy, Electro-therapeutics.

The Hospital is adjacent to the Medical College, and its wards are open to the students on four days in the week.

*The City Hospital.*—During the past year, 3,843 cases were treated in its wards, and 8,526 in its various out-patient departments. The Medical wards always contain many cases of acute diseases, and changes are taking place constantly. The opportunities for seeing fractures, injuries, and traumatic cases of all kinds, are excellent, since, on an average, 800 street accidents are yearly treated. Surgical operations are performed in the amphitheatre. These include general surgical, and also ophthalmic, operations. Diseases of the eye, the ear, and the skin are largely treated in the out-patient department. Clinical instruction is given by the physicians and surgeons twice a week.

In these two Hospitals the facilities for witnessing Operative Surgery are unsurpassed. Twice a week in the first half-year, and three times a week in the second half-year, operations are performed in the presence of the class. The number of these operations is large, reaching nearly *two thousand* a year. The variety is great; embracing every surgical disease and injury, including the surgical operations on the eye and ear.

*The Massachusetts Charitable Eye and Ear Infirmary.*—The eight thousand patients annually treated at this institution present every variety of disease of the ear and eye, and supply a large number of operations.

*The Marine Hospital at Chelsea* receives from the shipping of the port a large number of patients, who furnish examples of the diseases of foreign countries, and of distant parts of the United States. Many cases of venereal disease in its various forms are treated annually.

*The Boston Dispensary.*—Forty-one thousand patients were treated at this Public Charity during the past year. Students have excellent opportunities to see minor surgery, and many of the diseases of children, and to practise auscultation and percussion.



*Hospital Appointments.*—Twenty or more students are selected annually for House Officers of the various Hospitals. Appointments to the Boston Lying-in Hospital are for a term of three months.

### EXAMINATIONS.

The regular examinations are held in the following order:—

*At the end of the first year:* Anatomy, Physiology, and General Chemistry.\*

*At the end of the second year:* Medical Chemistry, Materia Medica, and Pathological Anatomy.

*At the end of the third year:* Therapeutics, Obstetrics, Theory and Practice of Medicine, Clinical Medicine, Surgery, and Clinical Surgery.

The regular examinations are held at the end of each year in June; and a week before the opening of the School in September, on the studies of the preceding year.†

No student shall be allowed to anticipate the examinations in the regular course of studies of his year, except by special permission of the Faculty. No student shall be allowed to present himself for examination in any branch, without notifying the Dean by letter that he intends to do so, one month before the time when the examination is to be held.

The examinations are conducted mainly in writing. No student will receive his degree until he has passed a satisfactory examination in all the above-mentioned subjects, and presented a certificate from the Demonstrator of Anatomy that he has satisfactorily dissected the three parts of the body. Those who fail in any subject may present themselves in that subject again, at the next regular examination. The regular examinations for the year 1877-78 will begin June 10th and September 23d.

The examinations for admission are held in June and September, on the Monday preceding the last Wednesday in each month.

### DIVISION OF STUDENTS.

Students are divided into three classes, according to their time of study and proficiency.

Students may be admitted to advanced standing in the regular course; but all who apply for admission into the second or third year's class must pass an examination at the beginning of the year in the branches already pursued by the class to which they seek admission, and furnish a satisfactory ‡ certificate of time spent in medical studies. No student shall advance with his class, or be admitted to advanced standing, until he has

\* See foot-note on page 10.

† The June examination is for those only who are members of the School at the time, and for those entitled to apply for the degree.

‡ Certificates from teachers who practise any peculiar or exclusive system of medicine are not accepted.

passed the required examination in the studies of the year, or a majority of them; nor shall he become a member of the third class until he has passed all the examinations of the first, in addition to a majority of those of the second, year.

Students who do not intend to offer themselves for a degree will, however, be received for any portion of the course.

Any student may obtain, without an examination, a certificate of his period of connection with the School.

### REQUIREMENTS FOR A DEGREE.

Every candidate must be twenty-one years of age, and of good moral character; must give evidence of having studied medicine three full years; have spent at least one continuous year at this School; have presented a satisfactory thesis; and have passed the required examinations.

Theses of conspicuous merit are mentioned with honor, or read, at the University Commencement.

The degree of Master of Arts is open to graduates of the School who are also Bachelors of Arts, and who pursue an approved course of study in Medicine for at least one year after taking the degree of Doctor of Medicine.

### LIBRARIES.

The library at the Medical College is open to the student on the deposit of five dollars, to be refunded to him when he may desire, after returning all books.

The College Library at Cambridge is open to the students of the Medical School.

The Boston Public Library, which contains a large collection of medical books, may also be used by students recommended by the Dean.

### BOYLSTON MEDICAL SOCIETY.

This society, composed of medical students, meets at stated intervals for the discussion of medical topics, and is presided over by a physician selected by the members. Prizes, in money or books, are awarded annually to the writers of essays judged worthy of such distinction by a committee of physicians selected for that purpose by the society.

### FEEES AND EXPENSES.

For matriculation, five dollars; for a year, two hundred dollars (if in two payments, at the first, one hundred and twenty dollars; at the second, eighty dollars); for a half-year alone, one hundred and twenty dollars; for graduation, thirty dollars. Of students who do not pay in advance, a bond for \$300, executed by two sufficient bondsmen, one of whom must be a citizen of Massachusetts, is required. A copy of such bond will be sent on application to the Secretary of the Faculty. To

students depositing these bonds, term-bills will be presented a week before the end of the first term, to be paid within two weeks; and also one week or more before Commencement, to be paid on or before the beginning of the next academic year. Such students shall be held responsible for the payment of fees until they shall have notified the Dean of their intention to withdraw from the School, and have subsequently received their bond from the Treasurer. No degree can be conferred till all dues to the School are discharged. The student's general expenses may be reduced, in accordance with his means, to the standard which prevails in other cities. The janitor of the Medical College will always have a list of boarding-houses in the vicinity of the college building, varying in their rates of charges from five to ten dollars a week.

#### PECUNIARY AID.

Four yearly scholarships have been established, of the value of \$200 each, open to meritorious students who have been at the School for one or two years. Only those needing assistance are expected to apply, and from such those holding the highest rank will have the preference.

Laboratory assistants to the Professors of Physiology and Chemistry are annually appointed from such deserving students as need aid. Students holding these positions are exempt from the payment of the fee for tuition during their term of service.

Students on joining the school must enter their names with the Secretary of the faculty.

#### COURSE OF STUDY FOR GRADUATES.

For the purpose of affording to those who are already graduates in medicine additional facilities for pursuing clinical, laboratory, and other studies, for which they had not previously found leisure, in such subjects as may specially interest them, and as a substitute in part for the opportunities heretofore sought for in Europe, the Faculty have established a post-graduate course, of which the following is a programme. The fee in each branch is for a single half-year.

*Histology.* — The various methods of examining the different tissues are employed, and opportunities for original research are offered. Fee twenty dollars.

*Physiology.* — Opportunities for original investigation in the Physiological laboratory. Fee thirty dollars.

*Medical Chemistry.* — Practical instruction in the Chemical laboratory in the analysis of the urine and other animal fluids in health and disease, and of poisons; examination of blood stains and other objects connected with medico-legal investigations, with the application of the microscope to these processes. General analysis, also, if desired. Laboratory fee thirty dollars.

*Pathological Anatomy.* — Practical instruction in Pathological Histology and the examination of specimens in the Microscopical laboratory; and opportunity for witnessing and making autopsies. Fee twenty dollars.

*Surgery.* — A practical course of operative surgery, and instruction in the application of bandages and apparatus. Fee twenty-five dollars.

*Auscultation, Percussion, and Laryngoscopy* practically taught, and diseases of the larynx demonstrated by the aid of the oxyhydrogen light. Fee twenty dollars.

*Ophthalmology.* — Clinical instruction, lectures on diseases of the eye, and demonstrations of the methods of performing operations. Exercises in the use of the ophthalmoscope. Fee twenty-five dollars.

*Otology.* — Lectures and clinical instruction on diseases of the ear. Fee fifteen dollars.

*Dermatology.* — Clinical instruction in diseases of the skin, illustrated by patients in this department of the Massachusetts General Hospital Lectures. Fee twenty-five dollars.

*Syphilis.* — Clinical instruction at the Boston Dispensary, and at the Marine Hospital (second half-year). Fee fifteen dollars.

*Psychological Medicine.* — Lectures on mental diseases. (Second half-year.) Fee five dollars.

*Diseases of the Nervous System.* — Practical illustrations of the application of various forms of electricity. Lectures. Fee fifteen dollars.

*Gynæcology.* — Clinical instruction in diseases of women. Fee ten dollars.

*Obstetrics.* — Cases supplied. A course of operative midwifery. Fee twenty dollars.

Those pursuing this course may elect the studies to which they will give their attention, and allot the time they will devote to each. They will be exempt, unless at their option, from examinations, and may obtain a certificate of attendance on this course of advanced study. On payment of the full fee for the course, they will have the privilege of attending any of the other exercises of the Medical School, the use of its laboratories and library, and all other rights accorded by the University.


Graduates of other medical schools may obtain the degree of M.D. at this University after a year's study in the graduates' course. The required examinations may be passed in such order as is desired, but only at the stated seasons.

The fee for a year is . . . . .	\$200
“ for a half-year . . . . .	120

For any of the special courses, such fees as are above specified.

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For further information or catalogues, address DR. R. H. FITZ, *Secretary*, 108 Boylston Street, Boston, Mass.

 The Medical College is on North Grove Street, Boston.

# EXAMINATION PAPERS.

(June Examination, 1877.)

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## First Year's Studies.

### ANATOMY. — PROF. HOLMES.

Describe : —

1. The epidermis.
2. The structure of bone.
3. The epithelium of the air-passages.
4. The coats of an artery.
5. The formation of the acetabulum.
6. Sesamoid bones, and where found.
7. The ligaments connecting the ribs to the spine.
8. The two sacro-sciatic ligaments.
9. The serratus magnus.
10. The coraco-brachialis.
11. The external iliac artery.
12. The dorsalis pedis.
13. The vena cava inferior.
14. The corpus callosum.
15. The fourth ventricle.
16. The glosso-pharyngeal nerve.
17. The phrenic nerve.
18. The coats of the intestine.
19. The mesenteric glands.
20. The ovary.

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### PHYSIOLOGY. — PROF. BOWDITCH.

1. What is meant by "combustion warmth," and how far is it a measure of the nutritive value of an article of food?
2. What constituents of meat does a clear soup contain?
3. What is the relation of the superior laryngeal nerve to the function of deglutition?
4. What is the general result of the digestive process?
5. How may coagulation of the blood be produced in the living body?
6. Describe the form and composition of the red blood-globules.
7. What nerves connect the central nervous system with the heart? Describe their functions.
8. Explain the function of the cutaneous blood-vessels in regulating the temperature of the body.
9. What is the measure of the amount of non-nitrogenous substances undergoing decomposition in the living body?



10. Why is perspiration in fever a favorable symptom?
11. Explain the mechanism of the salivary secretion.
12. What constituents of the bile are excreted, and what are absorbed?
13. What is the function of the nerves of muscular sense?
14. How may the reflex irritability of the spinal cord be diminished?
15. What motor nerve-fibres of the respiratory organs are contained in the vagus nerve?
16. What proof is there that the cerebral lobes are organs whose activity is associated with mental processes?
17. What is "irradiation"? What is its effect?
18. What is the mechanism of the urinary secretion?
19. How is the pleuro-peritoneal cavity originally formed?
20. What are the branchial clefts, and what becomes of them?

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#### GENERAL CHEMISTRY. — INSTRUCTOR HILLS.

1. Describe the preparation and properties of  $\text{CO}_2$ ;  $\text{N}_2\text{O}$ ;  $\text{H}_2\text{S}$ ;  $\text{Na}_2\text{CO}_3$ ,  $10\text{H}_2\text{O}$ ;  $\text{ZnSO}_4$ ,  $7\text{H}_2\text{O}$ . Write and explain all the reactions involved in the preparation of each.
2. What are the advantages of a decimal system of weights and measures? Give the English equivalent of a meter; liter; gram; kilogram.
3. Define the following terms: acid, base, simple ether, salt, acid salt, basic salt, alcohol. Give an example of each.
4. Draw a sketch of the spectra of sodium, potassium, lithium, and calcium. Why do the salts of a metal give, as a rule, the same spectrum as the metal itself?
5. What are the sources of the salts of K, Na, and  $\text{NH}_4$ ? Why are the salts of  $\text{NH}_4$  classed with those of K and Na?
6. What are the properties of aluminic compounds on which their use as mordants depends? Mention other important mordants.
7. What are the principal ores of Zn, Cu, Hg, Au, and Ag? For what are these metals severally used?
8. Why does  $\text{NH}_4\text{Cl}$  precipitate  $\text{Al}_2\text{H}_6\text{O}_6$  from its solution in  $\text{NaHO}$ ?
9. What change takes place on fusing the sulphides of the arsenic group with  $\text{Na}_2\text{CO}_3 + \text{NaNO}_3$ ? Why use  $\text{Na}_2\text{CO}_3 + \text{NaNO}_3$ , and not the corresponding potassium compounds?
10. Give the tests for  $\text{H}_2\text{SO}_4$ ,  $\text{HCl}$ ,  $\text{HNO}_3$ ,  $\text{H}_2\text{C}_2\text{O}_4$ ,  $\text{HCN}$ .
11. Write briefly the analysis of a solution containing potassic chromate and ferric chloride, and state what changes take place in the ordinary course of analysis.
12. Define organic chemistry. What is the difference between proximate and ultimate analysis? Describe briefly the process for the quantitative analysis of a solid compound of carbon, hydrogen, and oxygen.
13. Describe the process for the manufacture of soap, starting from  $\text{Na}_2\text{CO}_3$ .
14. Describe briefly the process for the manufacture of chloroform, acetic acid, ether, glycerine, potassic cyanide.

## Second Year's Studies.

## MEDICAL CHEMISTRY.—PROF. WOOD.

[In addition to the following questions, a written report of the analysis of a specimen of urine, and of a mixed organic and inorganic poison, was required.]

1. What changes may take place in the color of the urine pathologically? To what may such changes be due?

2. How detect abnormal coloring matters in the urine?

3. How estimate the amount of sugar in the urine quantitatively? Give the principal tests for sugar in the urine.

4. What is the character of the urine in acute nephritis? What changes take place in it during convalescence?

5. What is the character of the urine in passive congestion of the kidney?

6. What inferences may be drawn from urine having the following characteristics? Why?

(a) Color = pale. Reaction = acid. Sp. Gr. = 1015. Amount of urine = 1760 cub. cent. Considerable sediment.

Uph. = —.  $\bar{U}$ . = —. Cl. = n. E.P. = n.

Ind. = +.  $\bar{U}$ . = +. Sf. = n. A.P. = n.

Albumen =  $\frac{1}{4}$  —  $\frac{1}{2}\%$

Sediment = Hyaline, coarsely and finely granular, and fatty casts. Renal epithelium, much of which is fatty.

(b) Color = smoky. Reaction = acid. Sp. Gr. = 1012. Amount of urine = 1150 cub. cent. Considerable sediment.

Uph. = n.  $\bar{U}$ . = —. Cl. = n. E.P. = n.

Ind. = +.  $\bar{U}$ . = +. Sf. = n. A.P. = n.

Albumen =  $1\frac{1}{2}$  —  $2\%$

Sediment = Epithelial, fibrinous, hyaline, granular, and few fatty casts. Renal epithelium, some of which is fatty. Numerous blood globules. Some pus.

7. What are the characteristics of a calcic oxalate calculus? How determine its nature?

8. Give the properties of, and tests for corrosive sublimate. How detect it in the contents of a stomach?

9. What are the symptoms and treatment of opium poisoning?

10. What are the symptoms and post-mortem appearances in nuxvomica poisoning?

11. Give the tests for morphia, brucia, atropia and veratria.

12. Symptoms of digitalis poisoning.

## MATERIA MEDICA.—INSTRUCTOR MARKOE.

1. Mention the composition and doses of Compound Extract of Colocynth; Compound Tincture of Gentian; Aromatic Powder; Compound Rhubarb Pills.

2. What are Gums ; Gum-Resins ; Oleo-Resins ; Balsams ? Name two examples of each class.

3. Mention origin, active principles, important preparations, and doses of Opium.

4. Belladonna.

5. Veratrum Viride.

6. Senna.

7. Cinchona.

8. Cantharides.

9. Wild Cherry Bark.

10. Name the doses of Liq. Potassii Arsenitis ; Tinct. Aconiti Radicis ; Potassii Iodidum ; Atropiæ Sulph. ; Phosphorus ; Ergota ; Potassii Nitras ; Tinct. Iodini Comp. ; Syrupus Ferri Iodidi ; Pil. Hydrarg. ; Strychniæ Sulph. ; Zinci Sulphas.

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#### PATHOLOGICAL ANATOMY.—PROF. FITZ.

1. Rigor Mortis ; its method of origin, duration and significance.

2. The various internal lesions which may be associated with morbid wounded surfaces, and their mutual relation.

3. In the destruction of cartilage, what changes take place in its cells and intercellular substance ?

4. The causes and appearances of softening of the brain.

5. The anatomical appearances of intra-cranial tuberculosis.

6. How do you recognize hypoplasia of the aorta ?

7. What anatomical changes may take place in the muscular wall of the heart ?

8. What are the various anatomical lesions which may produce hypertrophy of either side of the heart ?

9. The various forms of goitre.

10. What appearances would lead you to consider that a new-born child had lived after birth ?

11. What is cheesy pneumonia, and what are its forms ?

12. What is meant by encysted peritonitis, and what names are given according to the situation ?

13. The differing appearances in chronic ulcer and in ulcerating cancer of the stomach.

14. The appearances resulting from amyloid degeneration of the spleen.

15. What are the forms of atrophy of the liver ?

16. What changes in the kidney may result from cardiac disease ?

17. The causes of a perinephritic abscess.

18. The relation between hydrocele and periorchitis.

19. The appearances of cancer of the uterus.

20. The method of development of ovarian cysts.



## Third Year's Studies.

## THERAPEUTICS. — PROF. EDES.

1. Dietetic action and value of beef tea, coffee, wine, and whiskey.
2. Irritants and Demulcents.
3. Antipyretic action of aconite, quinia, salicylic acid, salicylate of soda, and cold baths.
4. Mercury and Iodine.
5. Diuretics and Diaphoretics.

## OBSTETRICS. — PROF. REYNOLDS.

1. In the erect posture, what angle should the axis of the uterus, during the latter months of pregnancy, form with a horizontal line ?
2. Where is the ductus arteriosus found, and what is its function ?
3. What alteration does pregnancy effect in the mother's heart ?
4. Enumerate those signs of pregnancy, at seven months, which are certain.
5. In that variety of pelvic deformity which most frequently presents itself to the practitioner, what is the condition of the pelvic inlet, cavity, and outlet ?
6. If, in a presentation of the breech, the presenting part be already low in the excavation, and so firmly wedged that delivery by the natural efforts alone is improbable, how will you terminate the labor ?
7. Profuse hæmorrhage has occurred during labor at full term ; the membranes are unruptured ; the os is one inch dilated and rigid, — what is the duty of the accoucheur ? (The hæmorrhage is not due to an abnormal attachment of the placenta.)
8. If, toward the close of pregnancy, an attack of eclampsia be impending, what symptoms may be expected, beside those which an examination of the urine supplies ? State the appropriate treatment.
9. For what purposes is anæsthesia induced during labor, and to what extent do the several indications demand its employment ?
10. Give the indications for decapitation, and describe the details of the operation.

## SURGERY. — PROF. BIGELOW.

1. The difficulties and danger of fracture of the lower part of the tibia.
2. How to reduce a dislocation of the hip.
3. The treatment of stone (operations).
4. Hygroma.
5. Retention of urine and the expedients for its relief.
6. Gonorrhœa.
7. Tracheotomy (operation).
8. Amputation at the hip-joint.
9. Cataract.
10. Hernia.

## CLINICAL SURGERY.—PROF. CHEEVER.

[In addition to the following questions, the clinical report of a surgical case is required.]

[One hour and a half is assigned for answering the following questions.]

Give the differential diagnosis, prognosis, and treatment of the following cases :—

CASE I. A woman of 40 years, who has borne six children, has had bleeding from the *rectum* after stool, about once a week, for five years. No discharge from the *rectum* except blood. Bowels slightly constipated; stools normal in shape and size; her tongue is indented by her teeth; her complexion is waxy-yellow; her heart has a double-beat; her feet and ankles are œdematous; no ascites; lungs and kidneys normal.

CASE II. A little boy of 9 years got his leg caught through the revolving wheel of a wagon, between the spokes. The skin was torn across the whole popliteal space; the flesh lacerated, but the arteries of the foot pulsate; the diaphysis of the femur was separated from the epiphysis, and the shaft protruded through the wound four inches, quite stripped out from the tissues. The thigh was swollen, and emphysematous crackling could be felt under the skin as high as the groin.

CASE III. A man of 35 years, of fair health, sustained a simple fracture of the thigh, near the middle. At the end of four months of treatment in bed with extension, splints, and dextrine, the following condition is observed: great swelling and stiffness of ankle; fibrous ankylosis of knee, with swelling and tenderness; a movable hinge-like joint, without *crepitus*, at the seat of fracture; inability to stand.

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 THEORY AND PRACTICE.—PROF. MINOT.

1. Mention the symptoms, the lesions, and the proper treatment of infantile paralysis.

2. Give an outline of the treatment of diphtheria, both general and local, including that of the sequelæ.

3. What are the symptoms and the treatment of lead poisoning?

4. How is the temperature of the body affected in apoplexy, caused by cerebral hæmorrhage?

5. What are some of the causes of cerebral hæmorrhage, remote and immediate?

6. What is meant by *compensation* in diseases of the heart?

7. What is the proper treatment in a case of mitral insufficiency, with imperfect compensation?

8. How would you distinguish between hysterical peritonitis and genuine peritonitis?

9. What is the proper treatment for facial neuralgia?

10. Describe the paroxysm of epilepsy.

11. Mention the principal symptoms of measles.

12. Mention the principal diseases of the liver in which there is enlargement of the organ, and the principal signs peculiar to each.

## CLINICAL MEDICINE.— PROF. ELLIS.

[Give the differential diagnosis, the prognosis, and the treatment of as many of these cases as the time will allow, discussing them in the order in which they are arranged. Assume that symptoms not mentioned are wanting; but, as omissions, intentional or not, may occur, state them if essential. Success will depend more upon the quality than upon the quantity of the work. The intelligent discussion of the cases will have more weight than a hasty and inconclusive though correct diagnosis.]

1. An infant, the child of a nervous mother, lay in a torpid condition for some time after birth, and was afterwards nervous, fretful, and wakeful: when five weeks old, lay awake fourteen hours. Soon after, convulsive movements were noticed in the right side, and then over the whole body. On the first day, there were eight or ten paroxysms; less on the second, when they ceased. At the end of five days, they returned and were worse than before, the number of paroxysms amounting to perhaps thirty in twenty-four hours. The mother's milk having failed soon after the birth of the child, various kinds of artificial food were tried, mostly farinaceous, but including cow's milk, natural and condensed. The stools were described as indicating sufficiently good digestion. Those seen were dry, scybalous, and of a pale green color. Nothing unusual was noticed in the eyes, except strabismus during the convulsions.

2. A school girl, 15 years old, healthy and large for her age, after two weeks of chilliness, lassitude, and want of appetite, was exposed to cold in riding. In the night, she complained of soreness across the front of the chest, and pain in the cardiac region. The pain continued so severe for a week as to cause marked expressions of suffering, orthopnoea, and sleeplessness unless opiates were used. There was no appetite, and she took no food but beef tea. The urine was scanty, and passed infrequently. She had lost much flesh. Some cough, suppressed on account of pain. Scarcely any expectoration. At the end of a week, she complained of pain in the heels, then in the ankles and right knee. At this time the pulse was 128, somewhat tremulous. Temperature about 100. Respiration 40. Both feet and the right ankle were somewhat swollen. The cardiac dulness was normal. A systolic souffle was heard at the apex.

3. 40 years old. Widow ten years. Twelve weeks before visit, fever, vertigo, headache, and pains in various parts of the body. No urine for four days; and then only about six ounces, loaded with urates, containing also uric acid and a trace of albumen, but no blood nor casts. In three days, urine normal. Patient well for a week. Then above symptoms reappeared, and persisted ten weeks. During this time, urine but once in four days; and then three, four, and at most six ounces, except once one to two pints, after taking assafœtida, and twice fifteen to twenty ounces, quite clear and without albumen or urates, though generally loaded with the latter. S. G. 1.030; never below 1.020. A little albumen occasionally. No blood nor casts. Loss of consciousness at first, lasting a number of hours. Felt difficulty in swallowing then and twice afterwards. Sat up every day for ten or eleven weeks. In the morning, felt pretty well; but in the afternoon, red face, dizziness, pain in head and back, obliged to go to bed. Symptoms persisted till ten or eleven P.M., then sleep; woke tolerably well in the morning, as before. At first took food well, then appetite failed, and at last disgust for food. No nausea nor vomiting. Pulse 60, rather feeble. Temperature elevated about one degree. Catamenia appeared, and passed off in usual way

during illness. Mind clear. Never restless nor nervous; but lay in a fixed position, with a quiet, placid, indifferent look. Special senses intact.

4. English woman, 28 years old. Excitable temperament, and hysterical before marriage. Well since, with the exception of attacks of cholera-morbus in the summer. Four months before visit, walked some distance in the snow with thin shoes. After reaching home, felt faint, but did not lose consciousness. Left arm soon became numb, and, as she thought, paralyzed; but a physician who saw her at the time stated that, though the arm lay as if paralyzed, it could be moved when an effort was made. This symptom appeared and disappeared capriciously during the illness. Also numbness of right leg for a day or two for a month before she was seen. When first attacked, pain in cardiac region, and soon after in epigastrium, extending to left shoulder and down left arm. Nausea or vomiting more or less every day, until about three weeks before she was seen, when she began to improve, felt like eating a beef steak, and seemed to be getting well; but the vomiting returned. Vomitus green and yellow mucus. Had been worse every Friday; after improving a few days, would begin to feel heavy, and vomiting would soon return. Some appetite; no nausea. Confined to bed from the beginning. Pulse 120 at first; afterwards normal. Considerable loss of flesh, but no very obvious emaciation. Strength much diminished. Bowels generally costive, but loose at time of visit. Urine normal. Catamenia present a week before patient was seen. No uterine disease. No morbid cardiac signs. Mind clear. Complained mostly of nausea, vomiting, pain around the abdomen, through the hepatic region and back. Nothing unusual in the epigastrium. No œdema.

5. A merchant, 52 years old, enjoyed good health until last December, when he took cold, as he said, and had not been well since. There had been much nausea and vomiting, though very little during the last fortnight. He had vomited his breakfast frequently, when it was partly taken; and sometimes other meals. The appetite had been very deficient. Bowels regular. Quantity of urine increased. S. G. 1.009. Albumen. Urea diminished. Hyaline casts. Had lost ten or fifteen pounds of flesh. Strength much diminished. Sleep disturbed. No chills, fever, nor œdema. Looks pale and anxious, and feels weak. P. 104. Impulse of heart heaving. No murmur.

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*Papers used at the Examination for Admission — June, 1877.*

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L A T I N.

TRANSLATE:—

VIRGIL.

Tectum augustum, ingens, centum sublime columnis,  
 Urbe fuit summa, Laurentis regia Pici,  
 Horrendum silvis et religione parentum.  
 Hic sceptrum accipere et primos attollere fasces  
 Regibus omen erat; hoc illis curia templum,  
 Hæ sacris sedes epulis; hic ariete caeso  
 Perpetuis soliti patres considerare mensis.  
 Quin etiam veterum effigies ex ordine avorum  
 Antiqua e cedro, Italusque, paterque Sabinus,

Vitator, curvam servans sub imagine falcem,  
Saturnusque senex, Janique bifrontis imago,  
Vestibulo adstant, aliique ab origine reges,  
Martiaque ob patriam pugnando vulnera passi.

CICERO.

Quare, patres conscripti, incumbite ad salutem rei publicae, circumspicite omnes procellas, quae impendent, nisi providetis. Non Ti. Gracchus, quod iterum tribunus plebis fieri voluit, non C. Gracchus, quod agrarios concitare conatus est, non L. Saturninus, quod C. Memmium occidit, in discrimen aliquod atque in vestrae severitatis iudicium adducitur: tenentur ii, qui ad urbis incendium, ad vestram omnium caedem, ad Catilinam accipiendum Romae restiterunt; tenentur litterae, signa, manus, denique unius cujusque confessio: sollicitantur Allobroges, servitia excitantur, Catilina arcessitur, id est initum consilium, ut interfectis omnibus nemo ne ad deplorandum quidem populi Romani nomen atque ad lamentandam tanti imperii calamitatem relinquatur.

## FRENCH.

TRANSLATE:—

L'Expérimentation sur les animaux vivants est de la plus grande utilité pour la chirurgie; et si cette proposition avait encore besoin d'être démontrée, l'étude du système osseux nous fournirait des arguments décisifs et convaincants. Il n'est pas en effet de question chirurgicale dans laquelle l'expérimentation ait apporté plus de lumières. Les notions exactes que nous possédons sur la nutrition normale des os et sur la genèse de leurs altérations morbides ne remontent pas au delà d'un siècle, et ce sont les célèbres expériences de Duhamel qui en ont été le point de départ.

Avez-vous jamais vu une de ces armoires antiques, toutes noires de vieillesse à enroulements et à feuillage? C'était précisément une de ces armoires qui se trouvait dans la chambre: elle renait de la trisaïeule, et de haut en bas elle était ornée de roses et de tulipes sculptées. Mais ce qu'il y avait de plus bizarre, c'étaient les enroulements, d'où sortaient de petites têtes de cerf avec leurs grandes cornes. Au milieu de l'armoire on voyait sculpté un homme d'une singulière apparence: il ricanait toujours, car on ne pouvait pas dire qu'il riait. Il avait des jambes de bouc, de petites cornes à la tête, et une longue barbe.

Un tailleur et un forgeron voyageaient ensemble. Un soir, comme le soleil venait de se coucher derrière les montagnes, ils entendirent de loin le bruit d'une musique qui devenait plus claire à mesure qu'ils approchaient. C'était un son extraordinaire, mais si charmant qu'ils oublièrent toute leur fatigue pour se diriger à grands pas de ce côté. La lune était déjà levée, quand ils arrivèrent à une colline sur laquelle ils virent une foule de petits hommes et de petites femmes qui dansaient en rond d'un air joyeux, en se tenant par la main; ils chantaient en même temps d'une façon ravissante, et c'était cette musique que les voyageurs avaient entendue. Au milieu se tenait un vieillard un peu plus grand que les autres, vêtu d'une robe de couleurs bariolées, et portant une barbe blanche qui lui descendait sur la poitrine. Les deux compagnons restaient immobiles d'étonnement en regardant la danse.



## GERMAN.

TRANSLATE INTO ENGLISH :—

1. Da war einmal ein Königssohn, Niemand hatte so viele und so schöne Bücher als er; Alles, was in dieser Welt geschehen, konnte er darin lesen und die Abbildungen in prächtigen Bildern bewundern. Von jedem Volke und jedem Lande konnte er Auskunft erhalten, aber wo der Garten des Paradieses zu finden sei, davon stand kein Wort darin, und der gerade war es, an den er am meisten dachte.

Seine Grossmutter hatte ihm erzählt, als er noch ganz klein war, aber anfangen sollte zur Schule zu gehen, daß jede Blume im Garten des Paradieses der süßeste Kuchen, die Staubfäden der beste Wein sei; auf einem stehe Geschichte, auf einem andern Geographie, man brauche nur Kuchen zu essen, so könne man seine Aufgabe; je mehr man speise, um so mehr Geschichte und Geographie habe man inne.

2. Es war ein armer Mann, der hatte vier Söhne; wie die herangewachsen waren, sprach er zu ihnen „liebe Kinder, ihr müßt jetzt hinaus in die Welt, ich habe nichts, das ich euch geben könnte: macht euch auf und geht in die Fremde, lernt ein Handwerk und seht, wie ihr euch durchschlägt.“ Da ergriffen die vier Brüder den Wanderstab, nahmen Abschied von ihrem Vater und zogen zusammen zum Thor hinaus. Als sie eine Zeit lang gewandert waren, tamen sie an einen Kreuzweg, der nach vier verschiedenen Gegenden führte. Da sprach der älteste „hier müssen wir uns trennen, aber heute über vier Jahre wollen wir an dieser Stelle wieder zusammen treffen und in der Zeit unser Glück versuchen.“

3.

Du bist wie eine Blume,  
So hold und schön und rein;  
Ich schau' dich an und Wehmuth  
Schleicht mir in's Herz hinein.

Mir ist, als ob ich die Hände  
Auf's Haupt dir legen sollt',  
Betend, daß Gott dich erhalte  
So rein und schön und hold.

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 PHYSICS.

1. What is the force of gravitation? The law of universal gravitation?
2. Explain the action of the syphon.
3. What is meant by wave-motion and wave-length?
4. What are the laws of reflection of sound and light?
5. Describe the thermometer. Difference between the Centigrade and Fahrenheit scales? How convert one into the other?
6. What is specific heat?
7. What is refraction of light? Illustrate by an example.
8. What is the effect of a double convex lens upon a beam of parallel rays?
9. What is magnetism?
10. What is a hydraulic press? Upon what principle does it depend?

### SUMMARY.

Graduates' Course . . . . .	7
Third-Year Students . . . . .	48
Second-Year Students . . . . .	67
First-Year Students . . . . .	90
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Total . . . . .	212











